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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/773,125	02/05/2004	Sharon A. Elsworth	RTN-194AUS	3259
33164 7590 01/17/2008				
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SUITE 301A				
CANTON, MA 02021				
EXAMINER				
MATZEK, MATTHEW D				
ART UNIT		PAPER NUMBER		
1794				
MAIL DATE		DELIVERY MODE		
01/17/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/773,125

Applicant(s)

ELSWORTH ET AL.

Examiner

MATTHEW D. MATZEK

Art Unit

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 5, 6, 19, 20, 22, 24, 26, 28 and 30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 5, 6, 19, 20, 22, 24, 26, 28 and 30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-849)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Response to Amendment

1. The amendment dated 10/29/2007 has been fully considered and entered into the Record. Claims 1, 2, 5, 6, 19, 20, 22, 24, 26, 28 and 30 are currently pending. Claims 3, 4, 7-18, 21, 23, 25, 27, 29 and 31-36 have been cancelled. Claims 1 and 19 have been amended to now include limitations from dependent claims previously rejected. The 35 USC 112 rejection of claims 31-36 has been withdrawn as those claims have been cancelled.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1, 2, 5, 6 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barber, Jr. (US 2004/0101680 A1) in view of Schwartz et al. (US 4,826,508) for the reasons stated in the previous office action.

a. Barber, Jr. teaches an abrasive article comprising a fiber web of polyester, polyamide or polyaramid fibers [0081] that contains composition comprising a blocked polyisocyanate (polyurethane pre-polymer), a co-reactant curative [0006-7], a cross-linked copolymer and optionally a diluent [0058]. The composition comprising the pre-polymer and curative may be applied to the fiber web by a variety of processes that would lead the composition to impregnate and coat the fiber web [0065]. The curative stoichiometry of the pre-polymer/curative composition may range from 0.75 to 1.25 or 75 to 125 percent [0050]. This allows for the curative to range from ~0 to ~95 weight percent anticipating the claimed composition. Claims 3 and 7 are rejected as the applied composition may comprise from 5-90 weight percent pre-polymer and from 0.001 to 40

weight percent cross-linked copolymer. Therefore, the remaining weight percentage of the applied composition may be the curative component. Using the claimed formula of parts by weight of curative per 100 parts of pre-polymer results in 26.04 parts curative per 100 of pre-polymer or in percentage terms the curative should be about a quarter of the weight percent of the pre-polymer. With weight percentages of pre-polymer of up to 90 percent and the curative percentage ranging from ~0 to 95 of the composition a 26.04 parts curative per 100 parts pre-polymer limitation is anticipated. The manner in which the claim is currently constructed only the calculated result, "26.04 parts by weight of curative per 100 parts of pre-polymer", is required by the claim. If Applicant intends on claiming specific weights of the other components in the impregnation compound, such limitations should be set forth in a manner that clearly demonstrates that intent, for instance listing them exclusive of the discussion of the formula. Barber, Jr. fails to disclose the use of high strength and high modulus aramid and or aromatic polyester fibers.

b. Schwartz et al. disclose an abrasive member comprising resin, abrasive particles, and fabric, which is laminated onto a tough backing material (abstract). Preferably the backing fabric comprises poly-aramid fabrics (col. 3, lines 3-17) for strength. Poly-aramid polyparaphenylene terephthalamide fibers are used in the backing material to provide the article with strength (col. 3, lines 3-42).

c. Since Barber, Jr. and Schwartz et al. are from the same field of endeavor (i.e. abrasive articles), the purpose disclosed by Schwartz et al. would have been recognized in the pertinent art of Barber, Jr.

- d. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the invention of Barber, Jr. with the poly-aramid polyparaphenylene terephthalamide fibers with the motivation of imparting the abrasive invention of Barber, Jr. with improved strength as disclosed by Schwartz et al.
3. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barber, Jr. (US 2004/0101680 A1) in view of Schwartz et al. (US 4,826,508) as applied to claim 1 above, and further in view of Sandor et al. (US 5,976,998). The disclosures of Barber, Jr. and Schwartz et al. fail to teach the use of polyester-polyarylate fibers. The combined disclosures of Barber, Jr. and Schwartz et al. disclose the claimed invention except that it uses poly-aramid polyparaphenylene terephthalamide (KEVLAR®) instead of polyester-polyarylate (VECTRA®). Sandor et al. shows that polyester-polyarylate is an equivalent structure known in the art. Therefore, because these two materials were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute poly-aramid polyparaphenylene terephthalamide for polyester-polyarylate.
4. Claims 19, 20, 22, 24 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barber, Jr. (US 2004/0101680 A1) in view of Schwartz et al. (US 4,826,508) as applied to claim 1 above, and further in view of Fitzer et al. (US 4,227,350). The disclosures of Barber, Jr. and Schwartz et al. are silent as to the use of a second layer of resin-coated fabric.
 - a. Fitzer et al. teach a low-density abrasive product formed of a uniform cross-section lofty web comprised of an undulated entangled bonded filaments of high yield strength material impregnated with binder (Abstract). Figure 6, shows an embodiment of the abrasive product comprising a stack of several layers of the entangled web prior to the

compression of said stack and the final curing of the article (col. 3, lines 12-22). The thermoplastic material has a high yield strength of at least 3000 psi to provide the necessary degree of toughness for the prolonged use as an abrasive article (col. 4, lines 50-55).

b. Since Barber, JR. and Fitzer et al. are from the same field of endeavor (i.e. abrasive articles), the purpose disclosed by Fitzer et al. would have been recognized in the pertinent art of Barber, JR.

c. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the invention of Barber, JR. with additional layers of the abrasive article with the motivation of making the abrasive article available for prolonged usage as disclosed by Fitzer et al. (col. 4, lines 62-68).

5. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barber, Jr. (US 2004/0101680 A1) in view of Schwartz et al. (US 4,826,508) and Fitzer (US 4,227,350) as applied to claim 1 above, and further in view of Sandor et al. (US 5,976,998). The disclosures of Barber, Jr., Schwartz et al., Fitzer fail to teach the use of polyester-polyarylate fibers.

The combined disclosures of Barber, Jr., Schwartz et al. and Fitzer disclose the claimed invention except that it uses poly-aramid polyparaphenylene terephthalamide (KEVLAR®) instead of polyester-polyarylate (VECTRA ®), Sandor et al. shows that polyester-polyarylate is an equivalent structure known in the art. Therefore, because these two materials were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute poly-aramid polyparaphenylene terephthalamide for polyester-polyarylate.

Response to Arguments

6. Applicant's arguments filed 10/29/2007 have been fully considered but they are not persuasive.
7. Applicant argues that the applied art fails to teach or suggest that the ratio of the curative to the pre-polymer is derived from the claimed formula. Using the claimed formula of parts by weight of curative per 100 parts of pre-polymer results in 26.04 parts curative per 100 of pre-polymer or in percentage terms the curative should be about a quarter of the weight percent of the pre-polymer. With weight percentages of pre-polymer of up to 90 percent and the curative percentage ranging from ~0 to 95 of the composition a 26.04 parts curative per 100 parts pre-polymer limitation is anticipated. The manner in which the claim is currently constructed only the calculated result, "26.04 parts by weight of curative per 100 parts of pre-polymer", is required by the claim. If Applicant intends on claiming specific weights of the other components in the impregnation compound, such limitations should be set forth in a manner that clearly demonstrates that intent, for instance listing them exclusive of the discussion of the formula. Barber, Jr. fails to disclose the use of high strength and high modulus aramid and or aromatic polyester fibers.
8. Applicant argues that Examiner has not clearly identified to Applicant what relationship he is inferring with the term "cross-linked polymer". Examiner was merely listing the different components present in the disclosure of Barber, Jr. and to help to determine the various weights for each component. Its mention was not intended to be a comparison to a component of the instantly claimed composition.

9. Applicant argues that there are five variables in the ratio equation that should be identified in Barber, Jr. so that they can reasonable respond. As Examiner has previously stated, using the claimed formula of parts by weight of curative per 100 parts of pre-polymer results in 26.04 parts curative per 100 of pre-polymer or in percentage terms the curative should be about a quarter of the weight percent of the pre-polymer. With weight percentages of pre-polymer of up to 90 percent and the curative percentage ranging from ~0 to 95 of the composition a 26.04 parts curative per 100 parts pre-polymer limitation is anticipated. The manner in which the claim is currently constructed only the calculated result, "26.04 parts by weight of curative per 100 parts of pre-polymer", is required by the claim. If Applicant intends on claiming specific weights of the other components in the impregnation compound, such limitations should be set forth in a manner that clearly demonstrates that intent, for instance listing them exclusive of the discussion of the formula. Barber, Jr. fails to disclose the use of high strength and high modulus aramid and or aromatic polyester fibers.

10. Applicant argues that the claimed invention recites a specific ration not shown in the prior art. As addressed in the rejection section of this and previous Office Action the claimed parts by weight of curative per 100 parts of pre-polymer is provided for in Barber, Jr. Applicant continues by stating that the ratio required undue experimentation. Examiner would like to again point out that the claimed invention is provided for in the applied art. Examiner will reconsider this argument upon Applicant providing factual support for the allegation that it took undue experimentation to arrive at the claimed invention.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW D. MATZEK whose telephone number is (571)272-2423. The examiner can normally be reached on M-F, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571.272.1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew D Matzek/
Examiner, Art Unit 1794

/Norca L. Torres-Velazquez/
Primary Examiner, Art Unit 1794